



Software Assurance Curriculum Project

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Sponsorship and Goals

Sponsored by the Department of Homeland Security (DHS) National Cyber Security Division (NCSD)

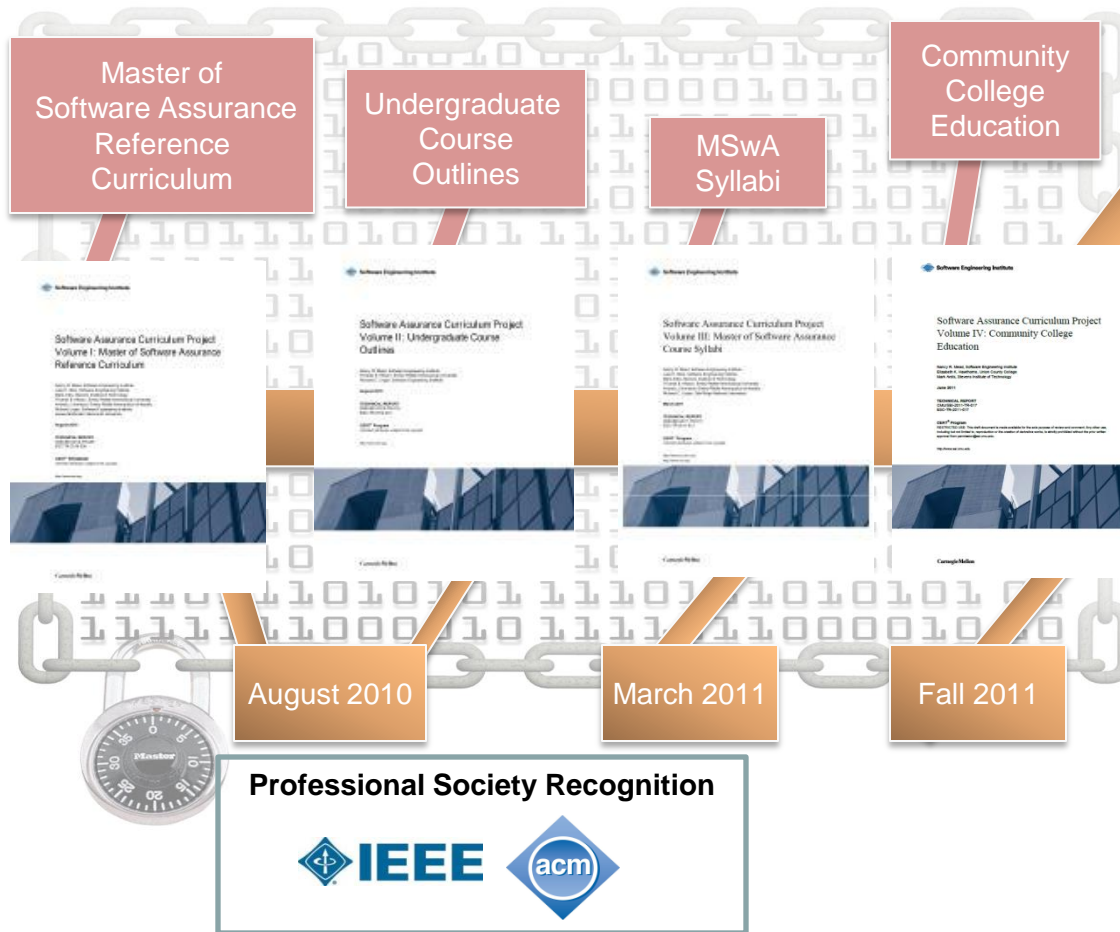
Activity led by the Software Engineering Institute (SEI) at Carnegie Mellon University

Goals

- develop software assurance curricula
- define transition strategies for future implementation

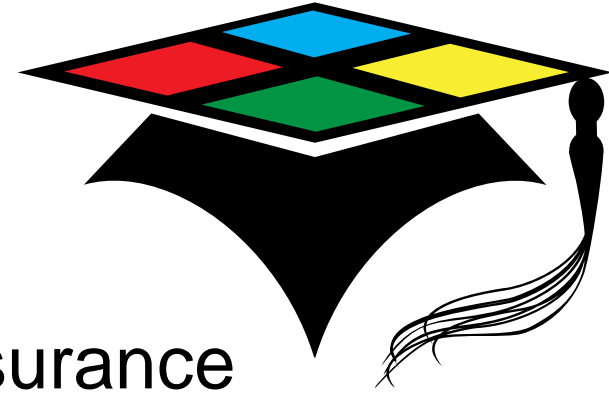
Software Assurance Curriculum Project

Goals: *Develop software assurance curricula*
 Define transition strategies for implementation



SwA Curriculum Project Objectives

Improve the state of software assurance education



- ◆ Develop a Master of Software Assurance Reference Curriculum (Volume I)

Identify educational offerings at other levels

- ◆ Undergraduate (Volume II)
- ◆ MSwA Syllabi (Volume III)
- ◆ Community College (Volume IV)
 - Integration with IS Curricula (Technical Note)

Curriculum Development Authors

- Nancy Mead (Lead) – SEI (Volumes I-IV & TN)
- Julia Allen – SEI (Volumes I, III)
- Mark Ardis – Stevens Institute of Technology (Volumes I, III, IV)
- Elizabeth Hawthorne – Union County College (Volume IV)
- Tom Hilburn – Embry-Riddle Aeronautical University (ERAU) (Volumes I, II, III)
- Jeff Ingalsbe – University of Detroit Mercy (UDM) (TN)
- Andrew Kornecki – ERAU (Volume I, III)
- Rick Linger – SEI, ORNL (Volume I, II, III)
- Jim McDonald – Monmouth University (Volume I)
- Dan Shoemaker – UDM (TN)
- Carol Sledge – SEI (Outreach)

Professional Society Recognition

IEEE Recognition

The MSwA curriculum was recognized by the IEEE Computer Society. Its notification follows:

At the meeting of the IEEE Computer Society Board of Governors it was passed: MOVED, that the IEEE Computer Society Board of Governors recognizes the SEI CMU/SEI-2010-TR-005 Reference Curriculum as appropriate for a Masters Program in Software Assurance for a period of 5 years beginning in 1 August 2010.

Statement: The curriculum recommendation could contain a statement similar to “*The IEEE Computer Society recognizes this curriculum recommendation as appropriate for a Masters Program in Software Assurance,*” signifying that the Society considers it suitable for its stated purpose. If the curriculum recommendation is appropriate as a model for similar efforts, the statement should indicate that designation.

IEEE published an article about its recognition of the MSwA curriculum at <http://www.computer.org/portal/web/pressroom/20101213MSWA>.

ACM Recognition

The MSwA curriculum was also recognized by the Association for Computing Machinery (ACM) Education Board. This is identical to the IEEE recognition.



SwA Publications & Presentations

The MSwA curriculum was selected for inclusion in the 2010 SEI Year in Review publication.

Nancy R. Mead, Julia H. Allen, Mark Ardis, Thomas B. Hilburn, Andrew J. Kornecki, Rick Linger, & James McDonald. "Development of a Master of Software Assurance Reference Curriculum," *International Journal of Secure Software Engineering* 1(4), 18-34, Oct - Dec 2010.

AMCIS paper presented by Mark Ardis (Stevens) in August 2011.

COMPSAC paper presented by Nancy Mead (SEI) in July 2011.

SSTC presentation of SwA Education initiatives by Linda Laird (Stevens) May 2011.

FISSEA presentation of SwA Education initiatives by Dan Shoemaker (UDM) March 2011.

CISSE keynote presentation by Joe Jarzombek and Nancy Mead June 2011.



2011 Educational Outreach

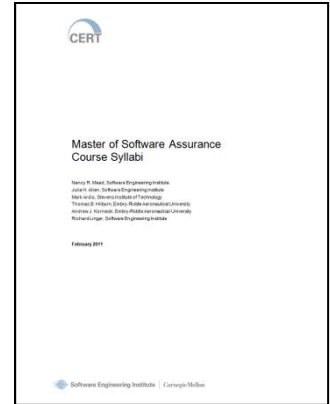
MSwA syllabi distribution

Posted on BSI and CERT SwA websites.

Sent directly to

- ~1400 individuals on DHS SwA mailing list
- 100 faculty (in 20 states & D.C.) at
 - colleges and universities (including two-year community colleges)
 - principal investigators at 15 National Science Foundation (NSF) Advanced Technological Education (ATE) Centers
- ~150 individuals within the Department of Defense (DoD) and others who work with the DoD (with request to further distribute to faculty)
- 170+ members of LinkedIn SwA Education discussion group

Additionally, information was sent or posted to nine relevant faculty e-mail lists, discussion group, or security related sites.



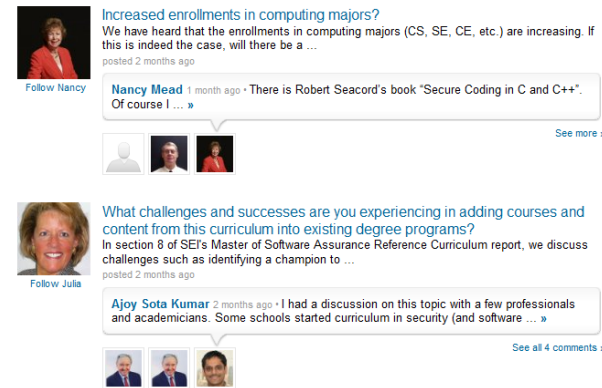
Additional Outreach Activities

Downloads of the MSwA curriculum model document and materials.

The LinkedIn group for SwA Education started October 2010 now has over 170 members.

Faculty members at several universities have contacted Nancy Mead, SwA Education team lead, for information about how to build a BS or MS program with an SwA concentration.

Carol Sledge, SwA team member, has done focused outreach and talks. The Service academies have been contacted to raise awareness of the curriculum and syllabi, and discuss ways to incorporate the material into their curricula.



Interested Universities & Educators

SwA Materials integrated into course offerings 2010-11

- Carnegie Mellon University
- Stevens Institute of Technology
- U.S. Air Force Academy
- University of Detroit Mercy

Other interested universities (partial list)

- Hampton University
- Team for Research in Ubiquitous Secure Technology (TRUST)
- Gunter Air Force Base (AFB)
- Southeast Missouri State University
- Cleveland State University
- ISC2

Additional SwA Curriculum Needs

MSwA course materials

- complete materials for the nine SwA core courses (slides, notes, exams, homework, case studies)

Curriculum development

- MSwA course descriptions for specializations in other degree programs
- full undergraduate curriculum, with specializations in Software Engineering, Information Systems, Computer Science
- address high school needs

Partial List of Resources

<http://www.cert.org/mswa/>

- MSwA Reference Curriculum document
- undergraduate course outlines
- MSwA course syllabi
- community college course outlines
- SwA in IS technical note
- master bibliography
- curriculum overview seminar
- VTE workshop from CSEET March 2010
- related SwA course materials

Contact Information

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ACM/IEEE-CS CS2013 Curriculum Effort

Steering committee assembled Fall 2010

Monthly conference calls and in-person meetings

New Knowledge Area

- Information Assurance and Security (IAS)

Software Development Knowledge Area

- includes secure coding practices

Strawman version available for public review

February 2012

- www.cs2013.org

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